

AMENDMENTS TO THE CLAIMS

Listing of the Claims

Q5B17 1. (Currently Amended) A method for amplifying at least a first diversity-encoded signal and second diversity-encoded signal, each of which represents information ~~represented by~~ of a first signal to be transmitted using transmit diversity, and for amplifying a second signal to be transmitted without using transmit diversity, the ~~method~~ comprising the steps of:

sharing the amplification of the at least first and second diversity-encoded signals between at least two amplifiers; and

sharing the amplification of the second signal between the at least two amplifiers.

2. (Original) The method of claim 1, wherein the first and second sharing steps are carried out concurrently.

A2 cont 3. (Currently Amended) The method of claim 1, further comprising the step of forming each of at least first and second composite signals as a function ~~functions~~ function of the at least first and second diversity-encoded signals; and

wherein the first of the sharing steps ~~comprises the steps of~~ includes:

amplifying the first composite signal in a first amplifier ~~of the at least two amplifiers~~; and

amplifying the second composite signal in a second amplifier ~~of the at least two amplifiers~~.

4. (Currently Amended) The method of claim 3, further comprising the step of forming each of the at least first and second composite signals as a function ~~functions~~ function of the second signal; and wherein the second of the sharing steps ~~comprises the steps of~~ includes:

amplifying the first composite signal in a first amplifier ~~of the at least two~~
amplifiers; and

amplifying the second composite signal in a second amplifier ~~of the at least two~~
amplifiers.

5. (Original) The method of claim 3, wherein the step of forming the at least first
and second composite signals is performed in the digital domain.

6. (Currently Amended) The method of claim 5,
further comprising the steps of:

pre-distorting the first composite signal, and

pre-distorting the second composite signal, and

wherein the steps of amplifying the first and second composite signals ~~comprise~~
further include amplifying the pre-distorted first composite signal and second composite
signals ~~signal~~.

7. (Currently Amended) The method of claim 1,
further comprising the step of forming each of at least first and second composite
signals as a function ~~functions-function~~ of the second signal; and

wherein the second of the sharing steps ~~comprises the steps of~~ includes:
amplifying the first composite signal in a first amplifier ~~of the at least two~~
amplifiers; and

amplifying the second composite signal in a second amplifier ~~of the at least two~~
amplifiers.

8. (Currently Amended) A method for processing at least a first diversity-
encoded signal and a second diversity-encoded signal, each of which represents
information ~~represented by~~ of a first signal, the method comprising the steps of:

forming at least a first composite signal and a second composite signal as a function of the at least first and second diversity-encoded signals;

amplifying the first composite signal in ~~a first amplifier~~ to produce an amplified first composite signal;

amplifying the second composite signal in ~~a second amplifier~~ to produce an amplified second composite signal; and

forming amplified first and second diversity-encoded signals as functions of at least the amplified first and amplified second composite signals.

9. (Currently Amended) The method of claim 8, wherein:

the amplified first diversity-encoded signal ~~comprises~~ further includes an amplified phase-shifted first diversity-encoded signal; and

the amplified second diversity-encoded signal ~~comprises~~ further includes an amplified phase-shifted second diversity-encoded signal.

10. (Currently Amended) The method of claim 8, wherein[[:]]

the first composite signal is a function of a combination of the first diversity-encoded signal with a phase-shifted version of the second diversity-encoded signal[[:]] , and

the second composite signal is a function of a combination of the second diversity-encoded signal with a phase-shifted version of the first diversity-encoded signal.

11. (Currently Amended) The method of claim 8, wherein[[:]]

the amplified first diversity-encoded signal is a function of a combination of the amplified first composite signal with a phase-shifted version of the amplified second composite signal[[:]]-₁ and

the amplified second diversity-encoded signal is a function of a combination of the amplified second composite signal with a phase-shifted version of the amplified first composite signal.

12. (Currently Amended) The method of claim 8, wherein:
the first composite signal is a function of a sum of the first diversity-encoded signal and of the second diversity-encoded signal; and
the second composite signal is a function of a difference between the first diversity-encoded signal and the second diversity-encoded signal.

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13. (Currently Amended) The method of claim 8, wherein:
the amplified first diversity-encoded signal is a function of a sum of the amplified first composite signal and the amplified second composite signal; and
the amplified second diversity-encoded signal is a function of a difference of between the amplified first composite signal and the amplified second composite signal.

14. (Original) The method of claim 8, further comprising the steps of:
transmitting the amplified first diversity-encoded signal over a first antenna; and
transmitting the amplified second diversity-encoded signal over a second antenna.

15. (Currently Amended) The method of claim 8, further comprising the steps of:
forming the at least first and second composite signals as a functions-function of a second signal; and
forming an amplified second signal as a function of at least the amplified first and amplified second composite signals.

16. (Original) The method of claim 8, wherein the step of forming the at least first and second composite signals is performed in the digital domain.

17. (Currently Amended) The method of claim 16, further comprising the steps of:

pre-distorting the first composite signal; and

pre-distorting the second composite signal; and

wherein the steps of amplifying the first and second composite signals ~~comprise~~ further include amplifying the pre-distorted first and second composite signals.

18. (Currently Amended) A transmitter, comprising:

a first device for forming at least a first composite signal and a second composite ~~signals~~ signal as functions of at least first and second diversity-encoded signals, the first and second diversity-encoded ~~signal~~ signals representing information ~~represented by~~ of a first signal;

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a first amplifier having an input coupled to the first device, the first amplifier amplifying the first composite ~~signals~~ signal to produce an amplified first composite signal;

a second amplifier having an input coupled to the first device, the second amplifier amplifying the second composite signal to produce an amplified second composite signal; and

a second device having a first input coupled to an output of the first amplifier and having a second input coupled to an output of the second amplifier, the second device for forming amplified first and amplified second diversity-encoded signals as functions of at least the amplified first and second composite signals.

19. (Currently Amended) The transmitter of claim 18, wherein the first device ~~comprises~~ includes:

channel processing circuitry; and

at least one radio for forming the first and second composite signals.

20. (Currently Amended) The transmitter of claim 18, wherein the first device ~~comprises~~includes:
channel processing circuitry;
at least one radio; and
a first hybrid combiner having an input coupled to an output of the radio, a first output coupled to the first amplifier, and a second output coupled to the second amplifier, the first hybrid combiner forming the first and second composite signals; and
the second device ~~comprises~~includes a second hybrid combiner having a first input coupled to the first amplifier~~[[,]]~~ and a second input coupled to the second amplifier.

21. (Currently Amended) The transmitter of claim 20, wherein the first and second hybrid combiners ~~comprise~~are embodied as 90° hybrid combiners.

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22. (Currently Amended) The transmitter of claim 18, wherein~~[[:]]~~
the first device further ~~comprises~~includes a digital predistorter having an output coupled to the first and second amplifiers, the digital predistorter pre-distorts the first composite signal and the second composite signal~~[[:]]~~,
the first amplifier amplifies the pre-distorted first composite signal to produce the amplified first composite signal~~[[I:]]~~, and
the second amplifier amplifies the pre-distorted second composite signal to produce the amplified second composite signal.

23. (Currently Amended) The transmitter of claim 18, wherein~~[[:]]~~
the amplified first diversity-encoded signal ~~comprises~~further includes an amplified phase-shifted first diversity-encoded signal~~[[:]]~~, and
the amplified second diversity-encoded signal ~~comprises~~further includes an amplified phase-shifted second diversity-encoded signal.

24. (Original) An apparatus, comprising:
at least one or more antenna; and
a transmitter coupled to at least one of the at least one or more antennas, the transmitter comprising:
a first device for forming at least a first composite signal and a second composite ~~signals~~-signal as functions of at least first and second diversity-encoded signals, the first and second diversity-encoded ~~signal~~-signals representing information ~~represented by~~-of a first signal;
a first amplifier having an input coupled to the first device, the first amplifier amplifying the first composite ~~signals~~-signal to produce an amplified first composite signal;
a second amplifier having an input coupled to the first device, the second amplifier amplifying the second composite signal to produce an amplified second composite signal; and
a second device having a first input coupled to an output of the first amplifier and having a second input coupled to an output of the second amplifier, the second device for forming amplified first and second diversity-encoded signals as functions of at least the amplified first and second composite signals.

25. (Currently Amended) The apparatus of claim 24, wherein the first device ~~comprises~~includes:

channel processing circuitry; and
at least one radio for forming the first and second composite signals.

26. (Currently Amended) The apparatus of claim 24, wherein the first device ~~comprises~~includes:

channel processing circuitry;
at least one radio; and

a first hybrid combiner having an input coupled to an output the radio, a first output coupled to the first amplifier, and a second output coupled to the second amplifier, the first hybrid combiner forming the first and second composite signals; and the second device ~~comprises~~ includes a second hybrid combiner having a first input coupled to the first amplifier, and a second input coupled to the second amplifier.

27. (Currently Amended) The apparatus of claim 26, wherein the first and second hybrid combiners ~~comprise~~ are embodied as 90° hybrid combiners.

28. (Currently Amended) The apparatus of claim 24, wherein[[:]] the first device further ~~comprises~~ includes a digital predistorter having an output coupled to the first and second amplifiers, the digital predistorter pre-distorts the first composite signal and the second composite signal;

the first amplifier amplifies the pre-distorted first composite signal to produce the amplified first composite signal; and

the second amplifier amplifies the pre-distorted second composite signal to produce the amplified second composite signal.

29. (Currently Amended) The apparatus of claim 24, wherein[[:]] the amplified first diversity-encoded signal ~~comprises~~ further includes an amplified phase-shifted first diversity-encoded signal[[:]], and

the amplified second diversity-encoded signal ~~comprises~~ further includes an amplified phase-shifted second diversity-encoded signal.

30. (Original) The apparatus of claim 24, wherein the apparatus includes at least two antennas and the transmitter is coupled to at least two of the antennas.

31. (Original) The apparatus of claim 24, ~~wherein the apparatus further comprises~~ comprising a receiver coupled to at least one of the antennas.

32. (New) A method for amplifying at least a first diversity-encoded signal and a second diversity-encoded signal, each representing information of a first signal to be transmitted using transmit diversity, and for amplifying a second signal to be transmitted without using transmit diversity, comprising:

sharing the amplification of the at least first and second diversity-encoded signals between at least two amplifiers, concurrently with
sharing the amplification of the second signal between the at least two amplifiers.

33. (New) A method for processing at least a first diversity-encoded signal and a second diversity-encoded signal, each representing information of a first signal, comprising:

forming at least a first composite signal based on a combination of the first diversity-encoded signal with a phase-shifted version of the second diversity-encoded signal;

forming a second composite signal based on a combination of the second diversity-encoded signal with a phase-shifted version of the first diversity-encoded signal;

amplifying the first composite signal to produce an amplified first composite signal;

amplifying the second composite signal to produce an amplified second composite signal; and

forming amplified first and second diversity-encoded signals based on the amplified first and second composite signals.

34. (New) A transmitter, comprising:

at least one radio;

a first hybrid combiner coupled to the radio, the first hybrid combiner forming at least first and second composite signals based on at least first and second diversity-

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encoded signals, the first and second diversity-encoded signals representing information of a first signal;

a first amplifier coupled to the first hybrid combiner, the first amplifier amplifying the first composite signal to produce an amplified first composite signal;

a second amplifier coupled to the first hybrid combiner, the second amplifier amplifying the second composite signal to produce an amplified second composite signal; and

a second hybrid combiner coupled to the first amplifier and to the second amplifier for forming amplified first and second diversity-encoded signals based on the amplified first and second composite signals.

35. (New) An apparatus, comprising:

at least one or more antennas; and

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a transmitter coupled to at least one of the at least one or more antennas, the transmitter comprising:

at least one radio;

a first hybrid combiner coupled to the radio, the first hybrid combiner forming at least first and second composite signals based on at least first and second diversity-encoded signals, the first and second diversity-encoded signals representing information of a first signal;

a first amplifier coupled to the first hybrid combiner, the first amplifier amplifying the first composite signal to produce an amplified first composite signal;

a second amplifier coupled to the first hybrid combiner, the second amplifier amplifying the second composite signal to produce an amplified second composite signal; and

a second hybrid combiner coupled to the first amplifier and to the second amplifier for forming amplified first and second diversity-encoded signals based on the amplified first and second composite signals.